

CLIMATOLOGICAL DATA FOR APRIL, 1912.

DISTRICT No. 8, TEXAS AND RIO GRANDE VALLEY.

B. BUNNEMEYER, District Editor.

GENERAL SUMMARY.

April added largely to the temperature deficiency that had accumulated during the preceding five months, and in the western portion of the district the current month was the coldest April of record. In the Texas portion, however, the deficiency of temperature was much less pronounced, and in portions of west Texas there was even a slight excess. Light to killing frosts occurred at frequent intervals throughout the month in New Mexico and Colorado, but the persistently cold weather had so delayed vegetation that their effect was much less harmful than it ordinarily would have been. The precipitation for the district as a whole averaged about normal. Moderate excesses occurred in the upper and middle Rio Grande Valley and in east Texas, while the deficiency was most marked in the Rio Pecos Valley and in west Texas. The snowfall was unusually heavy in the northern mountain districts, the greatest monthly fall being 108 inches at Anchor Mine, N. Mex. In the extreme upper reaches of the Rio Grande at an altitude of about 9,300 feet the average depth of snow at the close of the month was 15 inches, which is greater than usual so late in the season. Tornadoes and destructive local storms occurred in portions of Texas during the latter half of the month, killing several persons and causing considerable loss of property. Special reference has been made to the more severe storms in another part of this summary.

The precipitation was quite evenly distributed throughout the month, measurable amounts occurring daily in some portion of the district. The number of cloudy and rainy days was somewhat greater than normal. The number of days with 0.01 inch or more of precipitation averaged 6 in Colorado and Texas and 5 in New Mexico.

The monthly amounts of precipitation ranged in Colorado from 3.64 inches at Platoro to 0.05 inch at Garnett; in New Mexico from 7.30 inches at Anchor Mine to 0.03 inch at Rio Grande Industrial School, and in Texas from 9.37 inches at Beaumont to 0.17 inch at Theodore. Amounts of 2.50 inches or more in 24 consecutive hours occurred at 13 stations in Texas, the heaviest being 6 inches at Matagorda on the 9th.

TEMPERATURE.

The temperature deficiency averaged 3.6° in Colorado, 4.3° in New Mexico, and 0.6° in Texas. In the western portion of the district there were but 4 or 5 days with daily mean temperatures above the normal, but in the eastern portions the warm and cold periods were about equally divided as to duration. The extremes of temperature were not unusual to the season, and the average diurnal range of temperature varied from about 7° on the Texas coast to about 36° in the middle Rio Pecos Valley. The lowest temperatures occurred at most sta-

tions on the 2d or 3d, although the 7th, 8th, 14th, 17th, 22d, and 23d were also abnormally cold, while the highest temperatures occurred generally from the 24th to 30th. The nights especially were cold in the greater portion of the district.

The highest and lowest temperatures reported were: In Colorado, 70° at Saguache on the 24th and 29th and -12° at Hermit on the 22d; in New Mexico, 96° at Carlsbad on the 30th and 4° at Chama on the 14th, and in Texas 100° at 5 stations on several dates in the last decade and 27° at Valentine on the 2d and at Sonora on the 4th. The local monthly means ranged from 23.4° to 41° in Colorado, from 32.6° to 60.8° in New Mexico, and from 56.9° to 76.6° in Texas.

PRECIPITATION.

The average monthly precipitation for the Rio Grande watershed was 1.03 inches, which is 0.03 inch greater than the normal. The excess was greatest in the extreme upper portion of the watershed and less marked in southern New Mexico, while a decided deficiency occurred over a long stretch from Tres Piedras, N. Mex., to Mountainair, N. Mex. Over the Texas stretch the amounts averaged slightly less than normal.

Over the Rio Pecos watershed the precipitation was deficient, the average monthly amount for the watershed being 0.59 inch, which is 0.15 inch less than the normal. The greatest monthly amount was 1.68 inches at Mineral Hill, N. Mex., and the least 0.07 inch at Boaz, N. Mex.

In the Texas watersheds the precipitation was greater than the normal over the coastal plains and from the Trinity watershed eastward to that of the Sabine, with excesses ranging from 0.06 inch for the Trinity to 2.42 inches for the Neches. The remaining Texas watersheds showed comparatively light precipitation with deficiencies ranging from 0.10 inch for the Nueces to 1.23 inches for the Lavaca. The following are the average monthly amounts in inches for the various watersheds: Nueces, 2.39; San Antonio, 1.98; Guadalupe, 2.30; Lavaca, 2.14; Colorado, 2.04; Brazos, 2.60; Trinity, 3.80; Neches, 5.60; Sabine, 5; and coastal plains, 3.76.

RIVER CONDITIONS.

The Trinity, Sabine, and Neches were well above the normal during the entire month. Sharp rises occurred in the upper Trinity from the 2d to 4th and from the 12th to 15th. The former rise gave a stage slightly above the danger mark at Dallas. From Long Lake southward the Trinity was from 10 to 25 feet above low-water mark, except during the last week of the month, when the high water was rapidly subsiding. The Sabine was slightly above flood stage on the 9th and bank full on the 13th and 14th at Logansport, La. No rises of

consequence occurred in the Brazos and Colorado, and their flow averaged about normal, while the Guadalupe was at low-water mark throughout the month; but nearly all the streams were more or less fluctuating. Advices and warnings were issued for the more important rises, and no damage resulted from the high water so far as reported.

DESTRUCTIVE LOCAL STORMS.

Hailstorm.—A violent thunderstorm, accompanied by an unusually heavy fall of hail and rain, occurred at Houston, Tex., on April 16, in connection with a general disturbance that was central over south Texas on the morning of that date. The storm came from the southwest and traveled toward the northeast. The first thunder was heard at 5 a. m. and the last at noon. Thunder and lightning were incessant, and the accompanying precipitation broke all previous records. The total amount from this storm was 4.70 inches, of which 1.24 inches fell in 45 minutes, from 7 a. m. to 7.45 a. m., and 2.82 inches in two hours, from 9.34 a. m. to 11.34 a. m., flooding streets and interrupting traffic and car service.

From 6.55 a. m. to 7 a. m. and again from 7.40 a. m. to 7.45 a. m. there was an unusually heavy fall of hail. The hailstones varied in size from an ordinary playing marble to a walnut, but many were considerably larger. The larger ones, however, consisted of two or more pellets frozen together. In shape, the single stones were round, flattened or with indentations at opposite ends, while those frozen together were very irregular, with sharp edges and points projecting in various directions.

The barograph showed strong fluctuations, and the thermograph a drop of 10° , from 70° to 60° , during the first fall of hail. The direction of the wind was variable and the oscillations of the vane were mostly from south or southwest to northwest or north and back again to south. The hail in each instance began while the wind was in the southwestern quadrant. The maximum velocity of the wind recorded was at the rate of 26 miles per hour from the south at 6.05 a. m. A greater velocity occurred probably later as the wind was gusty, but the automatic record was lost because the hail disabled the anemometer. The dial showed a total wind movement of 10 miles from 6 to 7 a. m. and of 11 miles from 7 to 8 a. m. and less than that during the other hours of the forenoon.

Much damage was done by the hail to gardens, shrubs, and flowers, and streets and sidewalks were littered with leaves and branches of trees. The loss from broken window panes probably exceeds \$10,000 in the aggregate. At the Weather Bureau office the sunshine recorder was broken and the anemometer damaged.

Tornadoes.—On the afternoon of April 20 tornadoes with characteristic pendant funnel-shaped clouds occurred in north Texas in Parker, Wise, Denton, and Cooke Counties. These storms occurred in the southeastern quadrant of a general disturbance that was central over Colorado on the morning of the 20th and moving in a northeasterly direction. They came from the southwest and went toward the northeast, and their paths of great destruction are variously estimated at from 100 yards to one-half mile in width. At Dan, a community 14 miles north of Decatur, Wise County, 11 residences, 1 church, and 1 barn were demolished and several horses and cows were killed. Near Greenwood, in the same county, 13 houses were blown away, and 3 miles south of Rosston, Cooke County, 15 buildings suffered the same fate. There were no deaths in these localities, as the inhabitants sought refuge in their storm cellars. At Elizabeth, Denton County, 1 person was seriously injured and 8 houses were demolished, while at Flour Mound, 12 miles east of Elizabeth, 1 child was instantly killed, 1 grown person and 2 children were seriously injured, and 5 houses destroyed. Near Agnes, Parker County, 1 grown person and 3 children were killed, 3 persons badly injured, 4 houses destroyed, and several others damaged, and an iron bridge at Salt Creek was torn to pieces.

Several tornadoes occurred in the northeastern portion of Rusk County during the afternoon of April 28. A general disturbance was central over Oklahoma on the morning of that date moving northeastward. At Church Hill 2 persons were killed and 2 seriously injured and 11 houses were demolished and 2 schoolhouses torn to pieces. At Tatum a woman and her small child, after having their home demolished, were carried about 500 yards by the storm and mortally injured, while 6 other persons were seriously hurt. Twelve business houses in this town were either demolished or badly damaged, and out of 40 residences only a dozen escaped injury. Other buildings wrecked were 2 churches, a large gin house, the railway depot, and a bank. The storm traveled in a northerly direction from Tatum, leaving a trail of wreckage and broken trees for a distance of about 5 miles.

Destructive windstorms.—On April 20 a severe wind-storm in the vicinity of Copperas Cove, Coryell County, destroyed 3 houses, 1 windmill, and 1 barn, and damaged several other buildings. In the vicinity of Taylor, Williamson County, 1 man was killed and his wife seriously injured and 15 to 20 shanties were blown down. At the Weather Bureau office at Taylor the wind attained an extreme velocity of 50 miles per hour from the north. At Granger, Williamson County, several houses were blown from their foundations.

TABLE 1.—Climatological data for April, 1912. District No. 8, Texas and Rio Grande Valley.

Stations.	Counties.	Elevation, feet.	Length of record, years	Temperature, in degrees Fahrenheit.						Precipitation, in inches.						Sky.	Prevailing wind direction.	Observers.				
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmeasured.	Number of rainy days, 0.01 inch or more.	Number of clear days.	Number of partly cloudy days.	Number of cloudy days.					
Colorado.																						
Blanca.	Costilla.	7,865	3							2.02		0.43	17.2	7	13	14	3	sw.	Dr. L. C. Audrain.			
Cumbres.	Conejos.	10,015	5							0.05	-0.34	0.05	0.5	1	10	18	2	nw.	Mrs. Ida M. Lively.			
Garnett.	Costilla.	7,576	19	38.6	-3.1	68	30	10	1	45		0.50	17.0	5	11	5	14	nw.	Chas. Speiser.			
Hermit.	Hinsdale.	9,843	5	23.4		53	7	-12	22	56	1.49		0.38	15.4	5	5	18	w.	Marlon Mason.			
La Veta Pass.	Costilla.	9,000	2							1.47		0.30		2	14*	8*	7*	sw.	Clara M. Wright.			
Manassa.	Conejos.	7,700	6	38.2		67*	30	11*	14	43	0.37		0.77	41.9	14	10	5	15	sw.	J. B. Chapman.		
Platoro.	do.	7,675	5							3.64		1.11	+0.61	0.80	12.3	5	6	22	sw.	Walter R. Hook.		
Saguache.	Saguache.	7,740	20	41.0	-2.5	70	24†	15	22	46	1.16	+0.30	0.45	11.6	8	17	13	0	s.	Eugene Williams.		
San Luis.	Costilla.	7,794	21	40.2	-2.3	66	30	13	21	44	1.16	+0.19	0.42	15.5	12	7	13	10	sw.	P. B. Albright.		
Wagon Wheel Gap Experiment Station.	Mineral.	9,235	1	29.5	-6.3	53	30	6	21	36								ne.	U. S. Weather Bureau.			
New Mexico.																						
Agricultural College.	Dona Ana.	3,863	51	55.3	-5.9	85	30	31	21	44	0.80	+0.61	0.46	0	2	14*	15	1	w.	New Mexico Agricultural College.		
Alamogordo (near).	Otero.	4,338	15	55.8	-3.7	90	30	25	1	46	0.56	+0.02	0.47	0	3	12	14	4	sw.	Herbert Crippen.		
Alamogordo.	do.	4,320	3										0.26	0					Agent E. P. & S. W. R. R.			
Alamos Ranch.	Sandoval.	7,800	2								0.67		0.32		8	19	3	8	sw.	H. H. Brook.		
Bernalillo.	5,000	36									0.13	-0.37	0.08	0	3	23	6	1	w.	Pitt Ross.		
Ancho.	Lincoln.	6,112	3								0.33		0.33	T.	1				w.	Agent E. P. & S. W. R. R.		
Anchor Mine.	Taos.	10,600	1								7.30		2.00	108.0	17	5	10	16	w.	C. H. Brigham.		
Artesia.	Eddy.	3,350	4	58.3		94	30	28	2	54	0.09		0.07	0	2	20	4	6	sw.	Will Benson.		
Aspen Grove Ranch.	Rio Arriba.	9,000	3								1.69		0.60	17.9	9	9	20	1	sw.	J. D. Maupin.		
Banks.	Roosevelt.												0.62		41	T.	2	25	2	s.	Aaron Hawkins.	
Batemans Ranch.	Rio Arriba.	8,900	3										1.11		40	13.4	7	8	15	7	w.	J. W. Bateman.
Berino.	Dona Ana.	3,788	1										1.30		1.07	0	3			sw.	J. C. Rishaberger.	
Bluewater.	Valencia.	6,732	10	42.9	-4.5	75	30	19	2	45	0.67	+0.31	0.30	3.0	4	9	19	2	nw.	Bluewater Development Co.		
Boaz.	Chaves.	4,154	3	55.4		85	30	24	2	50	0.77		0.03	0	3	15	15	0	w.	D. C. Savage.		
Capitan.	Lincoln.	6,348	3								0.77		0.55	4.1	3	8	8	14	n.	Agent E. P. & S. W. R. R.		
Carlsozo.	Eddy.	3,120	17	60.8	-2.7	96	30	30	3	52	0.54	-0.17	0.32	0	3	23	3	4	sw.	U. S. Reclamation Service.		
Carrizozo.	Lincoln.	5,429	4	50.0		82	29†	28	2	41	0.56		0.38	T.	2	19	3	8	s.	Agent E. P. & S. W. R. R.		
Cerrillos (near).	Santa Fe.	5,700									0.50		0.18	1.0	6	12	12	6	w.	Irving C. Sweet.		
Chama.	Rio Arriba.	7,851	14	36.6	-5.3	65	30	4	14	40	2.39	+0.84	0.49	32.0	8	16	12	2	sw.	Frank C. Johnson.		
Cloudcroft.	Otero.	8,650	10	39.8	-2.0	67	22	14	13	29	0.59	-0.23	0.54	6.5	2				sw.	Agent E. P. & S. W. R. R.		
Corona.	Lincoln.	6,666	3								0.44		0.30	1.0	3	16	9	5	sw.	Do.		
Coyote.	do.	5,800	3								0.37		0.27	0	5	19	1	10	sw.	Do.		
Cundiyo.	Santa Fe.	6,889	3								0.76		0.24	0	6	14	2	2	w.	Juan Vilij.		
Demonstration Farm.	San Miguel.	6,800	3								0.54		0.20	1.0	4				w.	Erb & Westerman.		
Duran.	Torrance.	6,272	3								1.48		0.50	3.0	5	20	5	5	sw.	Agent E. P. & S. W. R. R.		
Escondido.	Otero.	4,014	3			89	30				0.95		0.54	0	3	25	3	2	sw.	Do.		
Espanola.	Rio Arriba.	5,590	14	46.9	-3.3	77	30	21	2†	41	0.45	-0.35	0.13	0	5	10	13	7	sw.	Mrs. E. F. McBride.		
Estandia.	Torrance.	6,140	7								1.50		1.05	4.0	5	17	10	3	w.	Agent N. M. Cantl. R. R.		
Fort Stanton.	Lincoln.	6,231	35	48.0	-3.2	80	30	17	2	49	0.69	+0.07	0.27	1.5	7	20	4	6	w.	U. S. Sanitarium.		
Fort Sumner.	Guadalupe.	3,960	4								0.12		0.09	0	2	23	2	5	sw.	F. A. Manzanares.		
Gallinas.	Lincoln.	6,635	3								0.65		0.31	0	4	14	16	1	w.	U. S. Forest Service.		
Gallinas Planting Sta.	San Miguel.	7,500	5	40.9		72	30	17	2	41	0.55		0.35	4.0	3	13	13	4	sw.	C. M. Crossman.		
Glorietta Ranch.	Socorro.	5,700	2								0.81		0.52	8.0	6	20	4	6	s.	S. B. Warner.		
Harveys Upper Ranch.	San Miguel.	9,400	3								1.24		0.16	24.8	12	15	15	0	se.	Dr. F. I. Givens.		
Hillsboro.	Sierra.	5,224	14								3.904		0.09	0	5	22	5	3	sw.	U. S. Reclamation Service.		
Hondo Reservoir.	Chaves.	5,560	3	56.0		92	30	27	2†	49	0.23		0.09	0	5	10	12	2	sw.	L. L. Shields.		
Jemez Springs.	Sandoval.	6,100	2	45.2		75	30	26	22	37	1.15		0.50	3.0	9	8	10	12	sw.	J. W. Mosley.		
Knowles (near).	Eddy.	4,300	2	56.6		94	30	28	2	59	0.35		0.17	0	5	19	7	4	w.	Gus Weiss.		
Laguna.	Valencia.	5,840	7	47.2		77	29	25	2†	41									w.	P. A. Turnbull.		
Lagunita.	Guadalupe.	4,500	7								1.50		1.05	4.0	5	17	10	3	w.	Wm. P. Kell.		
Lake Valley.	Sierra.	5,412	7								0.12		0.09	0	2	23	2	5	sw.	Miss J. Knapp.		
Lakewood.	Eddy.	3,170									0.70	-0.28	0.19	T.	6	20	9	1	sw.	New Mexico Normal Univ.		
Las Vegas.	San Miguel.	6,385	25	43.9	-5.5	74	30	18	2	41	0.65		0.31	0	4	14	16	1	w.	H. G. Liston.		
Liston.	Chaves.	5,000	2								0.18	-0.45	0.18	0	1	11	18	1	sw.	Richard Pohl.		
Los Lunas (near).	Valencia.	4,900	23	51.1	-5.0	86	30	25	2	50	1.06		0.25	T.	7	15	11	4	w.	William Pender.		
Magdalena.	Socorro.	6,557	7	45.2		75	29†	19	13	42	0.81		0.56	1.0	4	21	1	8	sw.	Rev. R. H. Harper.		
Mescalero.	Otero.	6,627	1	44.6		74	30	16	13	37	1.68		0.74	7.5	4	0	26	4	sw.	W. M. Nelson.		
Mineral Hill.	San Miguel.	7,050	7								0.63		0.48	1.0	2	15	14	1	w.	Agent E. P. & S. W. R. R.		
Monterey.	Otero.	4,436	3			84	30	30	13		0.63		0.48	1.0	2	15	14	1	w.	Miss Julia Hill.		
Mountainair.	Torrance.	6,547	10	46.4	-2.9	81	30	19	2	48	0.24	-1.22	0.18	1.0	3	15	10	5	sw.	Agent E. P. & S. W. R. R.		
Newman.	Otero.	3,989	3								1.32		1.20	0	2	22	5	3	w.	Agent E. P. & S. W. R. R.		
Noria.	Dona Ana.	4,114	3								1.05		1.05	2.0	1	22	5	3	w.	Do.		
Orogrande.	Otero.	4,171	3								0.52		0.34	T.	2	19	7	4	w.	Eugene F. Jones.		
Oscura.	Lincoln.	5,016	3								0.90		0.39	0	7				w.	A. M. Hove.		
Otis.	Eddy.	3,100	3								1.02		0.25	0	4	25	3	2	sw.	Otto Goetz.		
Otto.	Santa Fe.	6,200	3								0.33		0.18	T.	3	16	9	5	w.	George C. Ellis.		
Pastura.	Guadalupe.	5,285	3								0.33		0.24	8.0	7	12	13	5	w.	L. F. Adair.		
Placitas (near).	Bernalillo.	8,000	1	39.6		70	30	22	1†	32	0.87		0.24	0.8	7	12	13	5	w.	Mrs. L. R. Penn.		
Red River Canyon.	Chaves.	4,300	1								0.21		0.18	T.	3	17	5	8	w.	Charles H. Raitt.		
Rincon.	Dona Ana.	4,030	18	55.2	-4.1	88	30	27	1	48	0.94	+0.74	0.73	T.	2	11	7	12	w.	U. S. Reclamation Service.		
Rio Grande Dam.	Sierra.	4,																				

TABLE 1.—Climatological data for April, 1912. District No. 8—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, years.	Temperature, in degrees Fahrenheit.						Precipitation, in inches.						Sky.	Prevailing wind direction.	Observers.		
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, unmeted.	Number of rainy days 0.01 inch or more.	Number of clear days.	Number of partly cloudy days.	Number of cloudy days.		
New Mexico—Contd.																				
Truchas.	Rio Arriba.	7,935	3	38.0	.....	88	30	19	1	34	1.26	.....	0.22	15.1	9	3	18	9	w.	Miss Ruth Rendon.
Tularosa.	Otero.	4,436	3	.....	.....	74	28†	28	24†	.....	.....	.....	.....	.....	5	23	2	5	sw.	L. L. Fairless.
Vaughn.	Guadalupe.	5,952	3	.....	.....	66	26	20	13	31	2.23	.....	1.73	9.2	10	17	9	4	se.	Agent E. P. & S. W. R. R.
Virgilsylvia.	Taos.	7,500	2	44.9	.....	60	24	14	2	35	1.25	−0.15	0.30	12.5	8	6	24	0	s.	Dr. I. N. Woodman.
Winsors.	San Miguel.	8,200	16	32.6	−7.1	60	24	14	2	35	1.25	.....	.....	.....	.....	.....	.....	.....	s.	James F. Matty.
Texas.																				
Abita.	Taylor.	1,738	27	64.4	0.0	90	30	39	17	33	2.30	+ 0.02	0.86	0	7	10	5	15	s.	U. S. Weather Bureau.
Albany.	Shackelford.	1,429	18	62.2	−1.8	90	30	30	1	47	1.32	−0.71	0.51	0	4	20	0	10	se.	N. L. Bartholomew.
Alice.	Jim Wells.	209	1	71.4	.....	95	26	39	3	36	2.12	.....	1.27	0	6	5	8	17	se.	R. M. Boerum.
Alpine.	Brewster.	4,482	14	69.2	.....	88	28	40	3	31	5.44	+ 2.05	2.80	0	4	7	14	9	se.	J. Frank Dobie.
Anahuac.	Brazoria.	49	1	69.2	.....	.....	.....	.....	.....	.....	.....	.....	0.88	0	4	15	9	6	se.	Alvin Japanese Nursery.
Antelope.	Chambers.	23	3	.....	.....	.....	.....	.....	.....	.....	.....	.....	2.37	3.00	0	6	5	8	se.	B. H. Collins.
Aspermont.	Jack.	1	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	0.19	0	3	21	2	7	s.	Paul Rudolph.
Austin.	Stonewall.	593	56	67.2	−0.7	87	21	48	18	28	1.76	−1.41	0.66	0	9	15	6	9	se.	Bryant Link Co.
Balinger.	Travis.	1,637	18	65.2	+ 0.3	95	30	34	3	44	1.35	−0.98	0.86	0	4	12	5	13	s.	A. Deussen.
Barstow.	Runnels.	350	5	64.6	.....	98	28	33	2	64	0.30	.....	0.20	0	2	21	6	3	e.	E. M. Eubank.
Bay City.	Matagorda.	53	2	69.4	.....	88	29	44	3	32	3.22	.....	1.17	0	6	7	3	20	se.	Lee F. Freeman.
Beaumont.	Jefferson.	29	11	69.0	+ 0.2	86	24	44	3	30	9.37	+ 6.42	4.12	0	13	11	0	19	se.	E. C. Quereau.
Beeville.	Bee.	225	16	71.4	+ 0.8	92	28	44	3	28	3.18	+ 0.56	1.62	0	10	8	6	16	e.	John Bender.
Big Springs.	Howard.	2,396	14	65.4	+ 0.9	99	30	38	17	43	0.55	−1.12	0.32	0	5	15	9	6	s.	L. E. Dickey.
Blanco.	Blanco.	1,350	16	64.6	+ 1.2	85	20	33	3	40	3.73	+ 0.21	2.14	0	9	9	17	4	s.	B. Reagan.
Boerne.	Kendall.	1,412	20	66.3	+ 0.3	90	21	41	2	35	2.73	−0.81	1.23	0	12	14	3	13	n.	R. C. Crist.
Booth.	Fort Bend.	81	11	.....	.....	.....	.....	.....	.....	.....	4.66	+ 1.43	2.10	0	9	10	0	20	e.	F. W. Schweppe.
Bowie.	Montague.	1,113	17	64.0	−0.1	89	30	40	2†	37	2.31	−0.75	0.72	0	7	16	5	9	n.	T. R. Booth.
Brady.	McCullough.	1,500	11	.....	.....	.....	.....	.....	.....	.....	.....	.....	0	7	16	5	9	s.	Craig Anderson.	
Brazoria.	Brazoria.	25	23	69.3	+ 0.1	86	29	39	3	28	4.36	+ 0.82	1.26	0	10	11	10	9	s.	J. W. Griffin.
Brazos.	Palo Pinto.	801	3	.....	.....	97	30	45	3	28	1.94	−0.62	0	4	17	8	5	s.	Mrs. M. A. Stevens.	
Brenham.	Washington.	350	27	67.5	−1.3	87	30	45	3	28	4.24	+ 0.59	1.78	0	11	9	4	17	se.	Robt. E. Boyett.
Bridgeport.	Wise.	754	3	.....	.....	90	16	50	2	25	3.55	+ 1.66	2.00	0	10	15	6	9	s.	Mrs. B. F. Sloan.
Brighton.	Nueces.	12	19	71.0	−0.3	90	16	50	3	35	3.50	−2.01	0.60	0	6	7	8	6	e.	Claude Strange.
Brownsville.	Cameron.	38	48	74.8	+ 1.1	97	21	52	3†	32	1.76	+ 0.45	1.26	0	3	13	9	4	se.	G. H. Ritter.
Brownwood.	Brown.	1,342	20	65.3	0.0	90	12†	36	3	45	1.34	−2.01	0.60	0	6	7	18	5	s.	U. S. Weather Bureau.
Cameron.	Milam.	4	68.0	.....	91	30	40	2	39	1.90	.....	1.13	0	8	19	7	4	s.	Mrs. Pearl Smith.	
Carmona.	Polk.	330	4	68.1	.....	88	13	35	3	51	3.44	.....	1.45	0	7	11	5	14	s.	J. E. Watts.
Carizzo Springs.	Dimmit.	69.8	.....	92	20†	39	7	49	1	50	1.50	−0.10	0.93	0	5	19	0	11	se.	M. S. Spitler.
Claytonville.	Fisher.	2,100	17	64.0	+ 0.3	91	25	40	2	38	1.89	.....	2.03	0	7	5	15	10	s.	M. E. Cook.
Clifton.	Bosque.	671	1	.....	.....	90	15	40	3	35	3.20	−0.69	1.60	0	5	14	2	14	se.	Wm. Lanus.
Coleman.	Coleman.	1,710	18	68.2	+ 4.2	98	30	40	2†	50	0.87	−1.70	0.33	0	7	7	20	3	s.	R. M. Jones.
Collegeport.	Matagorda.	68.2	.....	87	26	38	3	34	2.11	−1.26	1.49	0	8	9	4	17	5	s.	J. E. Stevens.	
College Station.	Brazos.	308	22	68.6	−1.5	87	14†	45	4	34	2.11	−0.22	1.49	0	8	9	4	17	s.	H. A. Clapp.
Colorado.	Colorado.	2,066	18	63.9	−0.9	96	31	35	3	45	1.11	−1.79	0.55	0	3	18	10	2	s.	Prof. G. S. Fraps.
Columbus.	Colorado.	206	8	.....	.....	.....	.....	.....	.....	.....	4.16	.....	1.60	0	8	7	5	18	ne.	R. M. Webb.
Corpus Christi.	Nueces.	20	25	70.2	−0.7	88	16	53	8	19	1.57	−0.23	1.19	0	9	3	12	15	se.	R. B. Loggins.
Corsicana.	Navarro.	445	23	64.6	−2.3	83	30	42	2†	30	3.75	+ 0.05	0.90	0	11	9	6	15	s.	Mrs. Sophie Bridge.
Cotulla.	La Salle.	425	5	.....	.....	97	21	52	3†	32	3.50	.....	2.10	0	2	12	3	15	s.	U. S. Weather Bureau.
Crockett.	Houston.	350	8	68.6	.....	95	26	41	3	34	5.02	.....	2.26	0	7	10	7	13	s.	D. H. Winn.
Cuero.	De Witt.	177	22	67.2	−3.2	91	26	42	3	34	2.39	−0.65	1.68	0	9	7	2	21	s.	Holland Agricultural Co.
Dallas.	Dallas.	466	23	64.2	−0.7	90	15	40	4	43	3.68	−0.30	1.24	0	11	8	2	20	s.	A. M. Roncher.
Danevang.	Wharton.	145	16	69.8	+ 0.7	88	30	41	3	35	3.20	−0.69	1.60	0	5	14	2	14	se.	H. R. Frobese.
Decatur.	Wise.	1,047	16	.....	.....	90	30	37	3	36	1.17	−0.27	0.66	0	2	14	11	5	se.	G. A. Eisenlohr.
Del Rio.	Valverde.	952	6	69.6	−0.4	94	30	37	3	36	1.17	−1.77	0.87	0	8	9	4	14	se.	F. W. & D. Ry.
Devine.	Medina.	653	2	70.6	.....	95	29	42	4	43	2.47	.....	1.90	0	7	13	6	11	se.	U. S. Weather Bureau.
Dialville.	Cherokee.	575	8	66.4	.....	85	14	44	3	35	2.08	.....	2.65	0	10	9	8	13	s.	M. A. Keller.
Dilley.	Frio.	569	2	.....	.....	95	26	41	3	37	2.40	.....	1.50	0	3	8	3	13	se.	J. M. B. McKnight.
Dublin.	Erath.	1,466	16	66.2	+ 2.8	93	14	41	3	37	2.58	−0.78	1.23	0	8	13	9	5	s.	John W. Miller.
Duval.	Travis.	820	23	67.3	−1.4	86	30	43	3	29	3.50	−0.27	1.19	0	8	14	6	10	se.	Jno. O. Shafer.
Eagle Pass.	Maverick.	800	35	71.6	−0.8	96	28	40	3	36	2.12	+ 0.52	1.95	0	3	9	18	3	se.	J. C. Edgar.
Eastland.	Eastland.	1,420	5	64.6	.....	91	26†	37	17	46	1.24	.....	0.33	0	7	10	7	13	s.	Charles Tarver.
Edna.	Jackson.	71	3	.....	.....	90	29	53	7	31	1.80	−0.04	1.80	0	2	14	7	13	s.	Wm. D. Cook.
El Paso.	El Paso.	3,762	33	59.1	−4.7	86	30	36	7	38	0.96	+ 0.73	0.88	0	3	22	4	4	w.	E. L. Faires.
Encinal.	La Salle.	558	4	61.9	.....	89	28	40	4	41	3.65	.....	2.20	0	4	13	0	17	n.	U. S. Weather Bureau.
Eola.	Concho.	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Walter Pettit.
Fairland.	Burnet.	1,000	23	67.2	0.3	89	30	35	3	39	3.30	−0.20	1.47	0	8	12	7	7	s.	E. W. Neal.
Falfurrias.	Brooks.	4	55.0	.....	100	26†	41	3	37	1.44	0.42	0.08	0	4	15	11	4	se.	R. L. Bush.	
Flatonia.	Fayette.	465	4	68.8	.....	89	14	45	3†	33	1.89	0.86	0	12	7	4	19	5	s.	W. A. Gardner.
Flint.	Smith.	482	5	65.5	.....	85</														

TABLE 1.—Climatological data for April, 1912. District No. 8—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, years.	Temperature, in degrees Fahrenheit.						Precipitation, in inches.						Sky.	Prevailing wind direction.	Observers.	
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall, numbered.	Number of rainy days, 0.01 inch or more.	Number of clear days.	Number of partly cloudy days.	Number of cloudy days.	
Texas—Continued.																			
Hico.	Hamilton.	628	9	65.2	86	16	39	4	38	3.16	5.07	1.66	0	19	4	7	s.	John A. Easkins.
Hillsboro.	Hill.	901	13	67.4	90	29	40	3	34	3.06	+ 0.16	2.40	0	5	10	2	18	w. g. escott.
Hondo.	Medina.	138	23	69.2	- 0.4	86	21	47	3	25	6.62	+ 2.91	4.70	0	5	7	9	14	h. e. haass.
Houston.	Harris.	400	23	66.6	- 1.3	87	14†	39	4	36	4.14	+ 0.18	2.32	0	5	11	0	19	u. s. weather bureau.
Huntsville.	Walker.	496	8	65.6	90	15	40	9	36	4.50	1.75	0	6	17	6	7	w. y. barr.
Jayton.	Kent.	1,645	11	64.8	90	29	30	3	46	1.47	- 1.47	1.33	0	2	14	8	8	wichita valley ry. co.
Jewett.	Leon.	448	13	66.2	- 0.2	86	15	43	2†	31	4.37	+ 0.93	1.26	0	3	13	7	10	earle adkisson.
Junction.	Kimble.	1,650	16	65.5	0.0	87	21†	30	3	42	2.61	- 0.74	1.04	0	9	13	10	7	judge john s. durst.
Kaufman.	Kaufman.	2,050	8	65.4	90	30	34	3	43	4.58	0.79	0	5	15	12	3	b. j. hubbard.
Kerrville.	Kerr.	276	2	66.0	.....	83	15†	38	3	35	1.40	.....	0.80	0	6	9	5	robert e. horne.
Killeen.	Bell.	2,500	2	65.4	.....	90	30	34	3	43	2.40	- 1.21	1.82	0	9	11	3	j. e. root, jr.
Knickerbocker.	Tom Green.	576	15	65.4	.....	90	29	30	3	46	2.77	.....	0.77	0	5	16	16	jos. tweedy.
Kopperl.	Bosque.	576	15	65.4	.....	90	29	30	3	46	2.77	.....	0.77	0	5	16	t. a. johnson.	
Lagrange.	Fayette.	576	15	65.4	.....	90	29	30	3	46	2.77	.....	0.77	0	5	16	august hermes.	
Lamesa.	Dawson.	576	15	65.4	0.0	88	29†	35	3	43	2.89	- 0.62	0.24	0	5	15	15	s. d. austin.	
Lampasas.	Lampasas.	576	15	65.4	0.0	88	29†	35	3	43	2.89	- 0.62	1.18	0	7	11	4	mrs. k. i. webber.	
La Parra.	Willacy.	576	15	65.4	0.0	88	29†	35	3	43	2.89	- 0.62	2.42	+ 0.53	1	22	4	jno. g. kenedy.	
Laureles Ranch.	Nueces.	576	15	65.4	0.0	88	29†	35	3	43	2.89	- 0.62	2.67	+ 0.64	0	3	13	matt cody.	
Liberty.	Liberty.	576	15	65.4	0.0	88	29†	35	3	43	2.89	- 0.62	3.52	0	8	11	7	mrs. fannie sneed.	
Llano.	Llano.	576	15	65.4	- 2.2	88	27	37	3	38	3.12	+ 0.42	1.78	0	7	16	11	e. w. torrence.	
Llano Grande.	Hidalgo.	576	15	65.4	- 2.2	88	27	37	3	38	2.07	.....	1.30	0	2	15	1	m. d. wardlow.
Long Lake.	Anderson.	576	15	65.4	- 2.2	88	27	37	3	38	2.07	.....	2.30	0	5	8	19	geo. w. ellis.
Longview.	Gregg.	576	15	65.4	+ 0.8	87	15†	42	4	36	5.26	.....	1.45	0	11	10	5	c. a. propst.
Lubbock.	Lubbock.	576	15	65.4	0.0	87	15†	42	4	36	5.57	+ 2.18	0.40	0	4	13	11	a. l. paschall.	
Lufkin.	Angelina.	576	15	65.4	- 0.1	87	14	37	3	38	5.05	.....	2.76	0	7	17	1	t. a. king.
Luling.	Caldwell.	576	15	65.4	- 0.1	90	21†	42	3	32	5.04	- 0.90	0.70	0	10	14	1	john carter.	
McGregor.	McLennan.	576	15	65.4	- 0.1	90	21†	42	3	32	5.04	- 0.90	0.90	0	4	19	1	w. h. whitley.	
McKinney.	Collin.	576	15	65.4	0.0	87	15	38	3	34	6.30	+ 1.26	2.71	0	11	12	9	h. killingsworth.	
Marathon.	Brewster.	576	15	65.4	0.0	87	30	34	2†	37	5.26	.....	0.60	0	2	11	8	rev. a. p. willis.
Marble Falls.	Burnet.	576	15	65.4	0.0	87	30	34	2†	37	5.26	.....	1.20	0	6	8	5	r. h. coochran.
Marfa.	Presidio.	576	15	65.4	0.0	87	30	34	2†	37	5.26	.....	0.25	0	2	10	8	r. k. colquitt.
Marshall.	Harrison.	576	15	65.4	0.0	87	27	38	3	36	5.02	.....	1.65	0	10	2	20	lee scott.
Matagorda.	Matagorda.	576	15	65.4	0.0	87	27	38	3	36	5.02	.....	6.00	0	3	26	1	w. e. mcnabb.
Mexia.	Limestone.	576	15	65.4	0.0	87	27	38	3	36	5.02	.....	1.40	0	9	4	8	miss josephine newman.
Midland.	Midland.	576	15	65.4	0.0	87	27	38	3	36	5.02	.....	0.10	0	4	14	10	w. m. midkiff.
Mission.	Hidalgo.	576	15	65.4	0.0	87	27	38	3	36	5.02	.....	1.70	0	4	12	14	chas. m. kennelly.
Mont Belvieu.	Chambers.	576	15	65.4	0.0	87	27	38	3	36	5.02	.....	2.26	0	7	10	7	a. r. shearer.
Mountain View.	Pecos.	576	15	65.4	0.0	87	27	38	3	36	5.02	.....	2.35	0	7	13	1	lucius w. gosselin.
Mount Blanco.	Crosby.	576	15	65.4	- 1.5	93	30	32	2	44	1.21	- 0.66	0.47	0	3	13	1	h. c. smith.	
Nacogdoches.	Nacogdoches.	576	15	65.4	- 0.3	89	11	37	2	34	7.46	+ 2.77	2.49	0	9	11	5	miss mary hofmann.	
New Braunfels.	Comal.	576	15	65.4	- 1.0	87	30	40	3	30	1.51	- 1.97	1.21	0	4	9	9	j. giesecke.	
Palestine.	Anderson.	576	15	65.4	- 0.4	84	14	44	2	30	4.43	+ 0.35	1.85	0	10	8	14	u. s. weather bureau.	
Panter.	Hood.	576	15	65.4	0.0	87	27	38	3	36	2.04	- 1.74	0.60	0	8	15	1	e. h. snider.	
Pearsall.	Frio.	576	15	65.4	0.0	87	27	38	3	36	2.04	- 1.74	0.93	0	5	15	ernest de vilbiss.		
Pierce.	Wharton.	576	15	65.4	- 3.0	91	30	35	2†	46	2.69	- 0.42	1.17	0	4	10	2	r. b. pointer.	
Plainview.	Hale.	576	15	65.4	- 3.0	91	30	35	2†	46	1.38	- 0.42	0.78	0	6	14	11	j. f. sander.	
Port Arthur.	Jefferson.	576	15	65.4	0.0	87	27	38	3	36	4.00	.....	.....	0	10	10	10	griffing bros. co.
Port Lavaca.	Hidalgo.	576	15	65.4	- 0.5	86	21†	40	8	20	4.38	+ 1.21	2.22	0	4	10	10	j. h. bickford.	
Post City.	Calhoun.	576	15	65.4	- 0.5	86	21†	40	8	20	4.38	+ 1.21	2.22	0	4	10	10	w. l. dodd.	
Putnam.	Garza.	576	15	65.4	- 0.5	86	21†	40	8	20	4.38	+ 1.21	2.22	0	4	10	10	s. m. davis.	
Raymondville.	Callahan.	576	15	65.4	0.0	87	27	38	3	36	5.02	.....	1.00	0	5	15	9	c. h. pease.
Ricardo.	Cameron.	576	15	65.4	0.0	87	27	38	3	36	5.02	.....	2.55	0	4	15	15	al. patterson.
Riverside.	Nueces.	576	15	65.4	0.0	87	27	38	3	36	5.02	.....	3.73	0	4	15	15	mrs. c. w. higdon.
Rockland.	Walker.	576	15	65.4	0.0	87	27	38	3	36	5.02	.....	3.05	0	6	14	1	mack dunkin.
Rockport.	Aansas.	576	15	65.4	+ 1.2	83	29	56	8	18	3.16	+ 1.36	2.90	0	3	6	16	mrs. g. grewe.	
Rossville.	Atascosa.	576	15	65.4	- 0.4	90	28	40	3	35	1.60	0.93	0.93	0	9	8	16	w. f. m. ross.	
Runge.	Karnes.	576	15	65.4	0.0	87	27	38	3	36	2.00	- 1.52	1.10	0	3	12	1	reiffert & frobes.	
Sabinal.	Uvalde.	576	15	65.4	0.0	87	27	38	3	36	2.00	- 1.52	2.03	0	7	10	7	jas. johnston.	
Salado.	Bell.	576	15	65.4	0.0	87	27	38	3	36	2.00	- 1.52	1.09	0	6	5	20	l. m. crockett.	
San Angelo.	Tom Green.	576	15	65.4	- 1.8	90	30	34	2†	49	1.49	- 0.38	0.90	0	4	16	8	sam crowther.	
San Antonio.	Bexar.	576	15	65.4	- 0.4	90	21	42	3	33	1.78	- 1.16	1.35	0	11	8	10	u. s. weather bureau.	
San Augustine.	San Augustine.	576	15	65.4	0.0	87	27	35	3	34	5.29	.....	1.34	0	11	9	8	f. a. wilson.
San Juanito.	Hidalgo.	576	15	65.4	0.0	87	27	35	3	34	1.98	.....	0.81	0	6	2	28	j. b. mcalen.
San Marcos.	Hays.	576	15	65.4	- 0.4	86	21†	40	3	33	1.36	- 2.04	1.26	0	2	10	0	20	miss l. c. ford.
San Saba.	San Saba.	576	15	65.4	- 1.7	83	27	30	3	34	3.59	+ 1.11	2.20	0	8	13	12	j. b. burns.	
Santa Gertrudes.	San Saba.	576	15	65.4	0.0	87	27	30	3	34	2.41	+ 0.38	1.78	0	2	10	0	20	j. b. wright, jr.
Sealy.	Austin.	576	15	65.4	0.0	87	27	30	2	36	1.53	.....	1.56	0	8	9	1	o. h. albert.
Seymour.	Baylor.	576	15	65.4	0.0	87	27	30	3	34	3.51	0.72	0.27	0	6	18	5	s. c. lee.	
Snyder.	Scurry.	576	15	65.4	0.0	87	27	30	3	34	2.90	.....	0	11	8	10	j. allen weaver.	
Somerville																			

TABLE 2.—*Daily precipitation for April, 1912. District No. 8, Texas and Rio Grande Valley.*

TABLE 2.—*Daily precipitation for April, 1912. District No. 8—Continued.*

TABLE 2.—*Daily precipitation for April, 1912. District No. 8—Continued.*

* Precipitation included in that of the next measurement.

Separate dates of falls not recorded.

Precipitation for the 24 hours ending on the morning when it is measured.
 Precipitation is less than 0.01 inch rain or melted snow.

T. Precipitation is less than 0.01 inch rain or melted snow.

TABLE 3.—Maximum and minimum temperatures at selected stations for April, 1912. District No. 8, Texas and Rio Grande Valley.

Date.	Colorado.				New Mexico.										Texas						Abilene.		Big Springs.		Brownsville.		Corpus Christi.	
	Garnett.		San Luis.		Agricultural College.		Carlsbad.		Fort Stanton.		Mountain-air.		Rosedale.		Roswell.		Santa Fe.		Santa Rosa.		Abilene.		Big Springs.		Brownsville.		Corpus Christi.	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1...	50	10	43	21	62	32	71	37	52	23	56	26	48	25	60	31	44	24	49	32	68	43	74	42	88	72	78	68
2...	54	13	58	18	67	38	68	34	65	17	63	19	56	28	67	28	52	20	65	25	66	41	68	39	81	60	72	55
3...	58	14	61	24	74	38	82	30	67	18	67	26	55	30	72	30	59	30	70	29	73	44	75	46	73	52	63	55
4...	62	18	60	26	70	49	84	32	70	33	72	35	60	35	82	44	60	37	78	38	72	52	75	51	76	52	68	62
5...	58	20	59	24	73	44	79	57	69	35	71	34	57	40	77	44	59	37	74	38	77	57	77	56	80	60	72	64
6...	56	23	60	27	64	39	76	47	56	32	61	27	56	30	74	41	46	30	62	40	80	58	82	57	84	65	74	67
7...	58	30	59	26	50	39	69	45	47	28	45	28	45	28	60	41	49	28	58	30	58	47	70	49	81	66	69	57
8...	58	27	60	23	54	40	54	38	59	27	58	28	46	26	58	39	41	28	58	34	67	47	61	44	68	55	62	53
9...	60	19	63	20	70	37	78	41	67	31	67	36	56	25	77	35	59	26	73	33	72	56	78	51	69	55	65	56
10...	58	28	64	20	70	52	80	48	69	32	65	37	58	36	80	40	51	33	70	37	82	53	89	51	79	61	70	63
11...	57	18	62	24	75	39	83	41	68	32	66	25	59	30	79	40	59	30	74	36	77	60	89	51	82	70	70	68
12...	48	21	58	30	65	41	82	50	60	35	55	29	54	29	75	41	48	23	66	37	86	63	89	59	79	70	76	67
13...	53	17	57	18	58	36	75	40	52	27	51	24	45	22	64	38	42	24	57	34	74	51	82	45	91	72	81	70
14...	53	17	53	18	68	32	77	43	64	33	56	26	55	24	75	38	51	23	65	38	82	49	82	42	76	68	75	65
15...	54	28	49	24	61	39	73	41	60	26	59	30	50	32	67	41	51	32	59	39	76	51	77	44	84	69	73	70
16...	48	17	49	26	64	40	66	42	53	32	55	34	54	27	64	37	48	32	55	33	45	60	47	90	73	88	69	
17...	50	19	50	24	70	38	76	35	58	30	59	30	50	30	74	35	47	32	60	37	76	39	74	38	80	65	74	59
18...	48	20	50	23	72	39	79	40	60	27	56	28	48	28	74	35	45	30	64	34	76	48	82	47	80	54	73	63
19...	50	22	47	25	73	40	80	37	65	26	64	24	60	40	76	34	53	31	70	32	74	56	83	49	86	67	72	69
20...	47	25	48	23	71	49	80	50	62	42	55	33	54	30	73	44	45	31	62	34	84	60	85	57	88	72	75	70
21...	50	15	48	13	70	40	82	49	63	36	55	25	58	26	74	33	47	30	62	37	80	53	85	46	97	70	78	71
22...	55	12	50	17	74	31	84	52	70	27	71	24	62	26	74	34	55	27	68	30	71	46	78	44	82	71	84	70
23...	56	23	63	19	80	38	81	48	71	29	76	28	63	31	82	37	62	33	76	33	82	52	88	53	81	65	75	64
24...	67	22	63	25	84	41	85	47	76	32	66	34	68	38	80	45	63	45	74	39	82	58	85	61	84	70	72	69
25...	57	28	61	35	77	43	80	47	68	24	62	24	60	40	80	43	75	35	72	38	87	68	93	66	87	73	80	71
Mns.	55.8	21.4	56.2	24.1	70.3	40.3	78.5	43.0	64.6	31.3	63.3	29.6	56.9	31.6	74.3	38.6	53.6	31.0	67.5	35.7	75.9	52.8	80.9	49.9	83.1	66.4	74.7	65.8

Date.	Texas.																											
	Del Rio.		El Paso.		Fort McIn-		Fort Stock-		Fort Worth.		Galveston.		Hallett-		Houston.		Lufkin.		Palestine.		Plainview.		San An-		Seymour.		Taylor.	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1...	82	52	61	38	89	67	85	45	65	45	68	65	77	66	72	61	78	61	71	50	52	36	80	58	63	45	72	52
2...	74	48	67	36	85	47	71	36	64	43	65	55	67	50	64	51	63	44	65	35	71	50	67	40	65	46	74	
3...	73	37	74	46	82	45	77	37	70	43	62	55	72	42	69	47	75	37	72	46	70	35	71	43	71	40	74	
4...	73	52	76	59	83	57	83	53	72	49	66	60	74	48	71	50	76	42	71	47	75	41	73	49	79	66	88	
5...	76	57	73	55	83	57	78	52	76	57	69	62	80	56	76	60	76	53	75	55	72	43	76	55	74	50	78	56
6...	82	65	65	44	91	71	81	46	73	58	72	64	77	65	72	62	66	64	67	48	73	63	82	63	71	64	82	74
7...	71	48	57	36	88	55	75	42	58	47	68	53	65	52	69	60	71	64	65	52	59	35	67	47	66	52	74	64
8...	55	48	52	38	62	46	52	40	64	44	62	53	62	52	63	51	71	54	66	49	53	41	60	59	64	42	62	49
9...	69	52	71	43	71	41	85	47	60	49	64	52	65	55	67	57	68	49	58	52	75	43	68	54	73	63	82	54
10...	69	56	71	51	78	55	89	52	69	57	71	64	78	62	77	64	79	56	82	43	74	58	83	53	75	60	86	55
11...	79	65	76	44	87	61	88	48	78	61	70	66	78	65	77	66	81	63	78	65	80	41	76	65	78	62	87	64
12...	87	68	68	44	86	69	87	52	81	60	74	67	69	67	76	69	80	62	78	60	53	77	68	80	65	87	67	
13...	83	59	59	41	87	60	83	46	77	58	76	66	79	69	84	69	84	66	79	66	73	38	82	65	80	50	80	64
14...	85	54	70	40	92	62	81	45	83	52	74	64	86	55	85	60	87	55	84	60	74	40	88	57	83	50	87	59
15...	79	64	63	44	86	67	88	43	88	62	74	69	80	70	79	71												